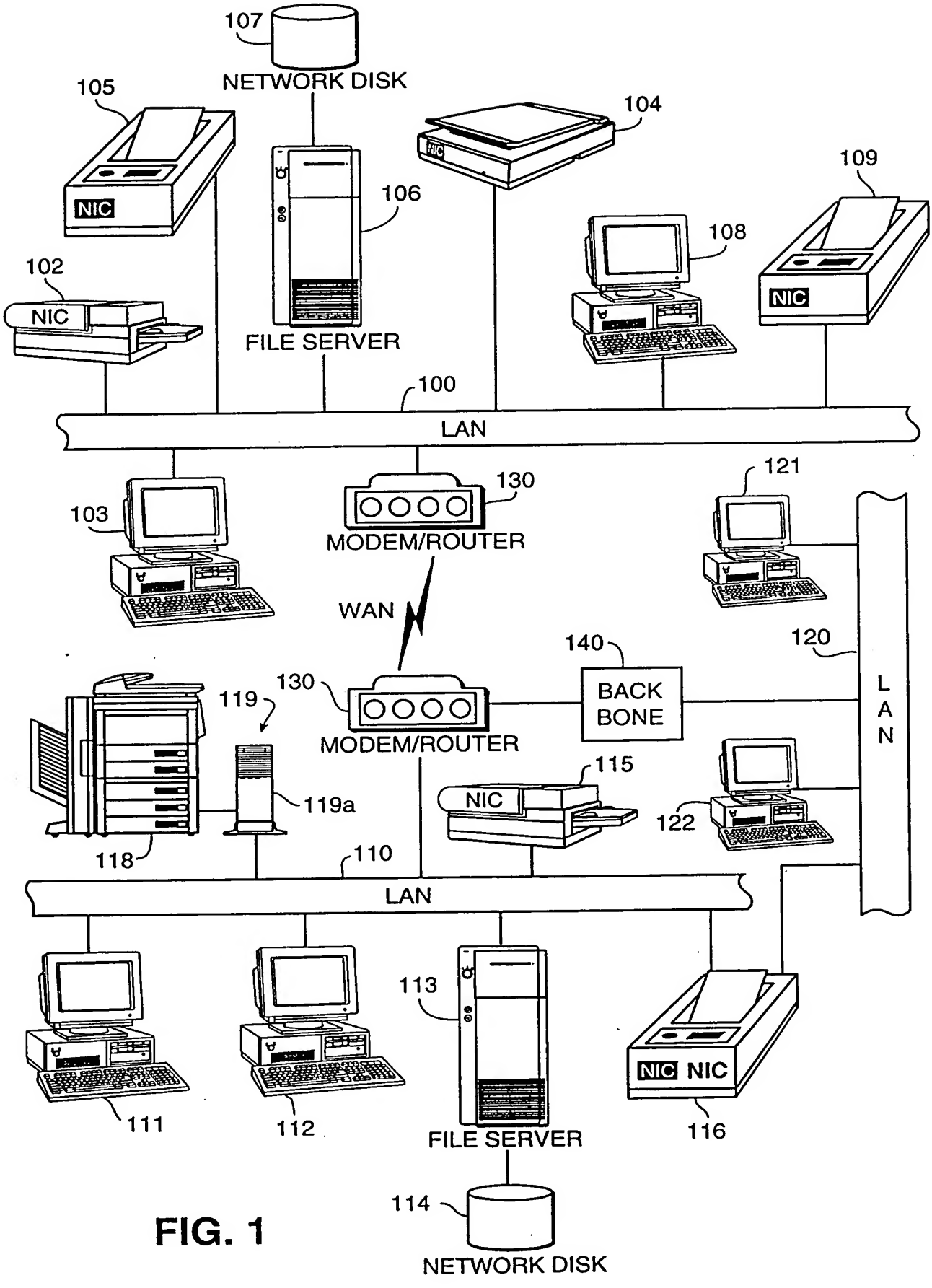
107
NETWORK DISK
105
NIC
104
NIC
109
106
108
102
NIC
NIC
FILE SERVER
100
LAN
103
130
MODEM/ROUTER
121
WAN
140
120
130
BACK
BONE
L
A
N
119
MODEM/ROUTER
115
NIC
119a
122
118
110
LAN
113
111
112
NIC NIC
116
FILE SERVER
114
NETWORK DISK

FIG. 1

6660MG 2566960

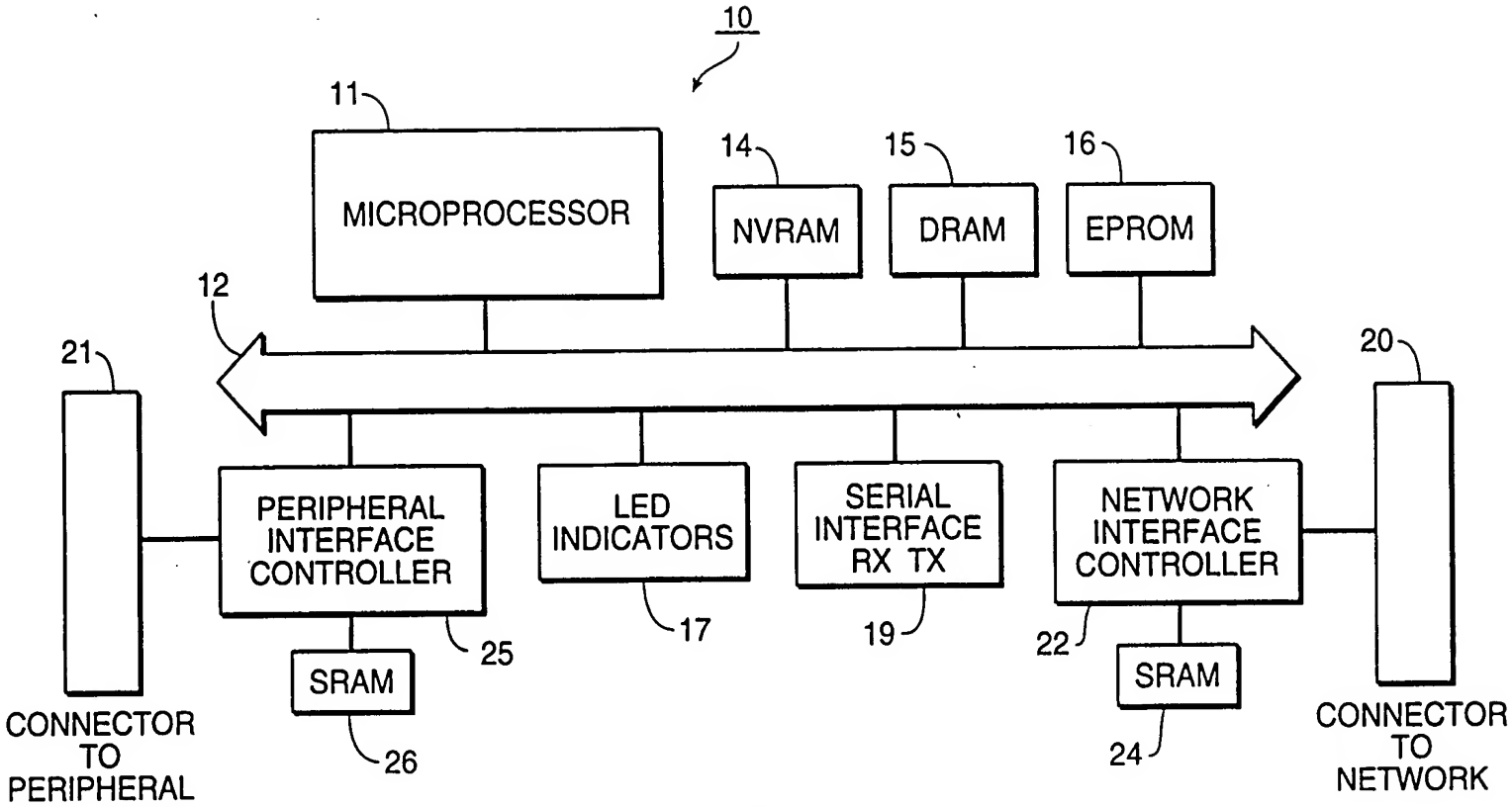

FIG. 2

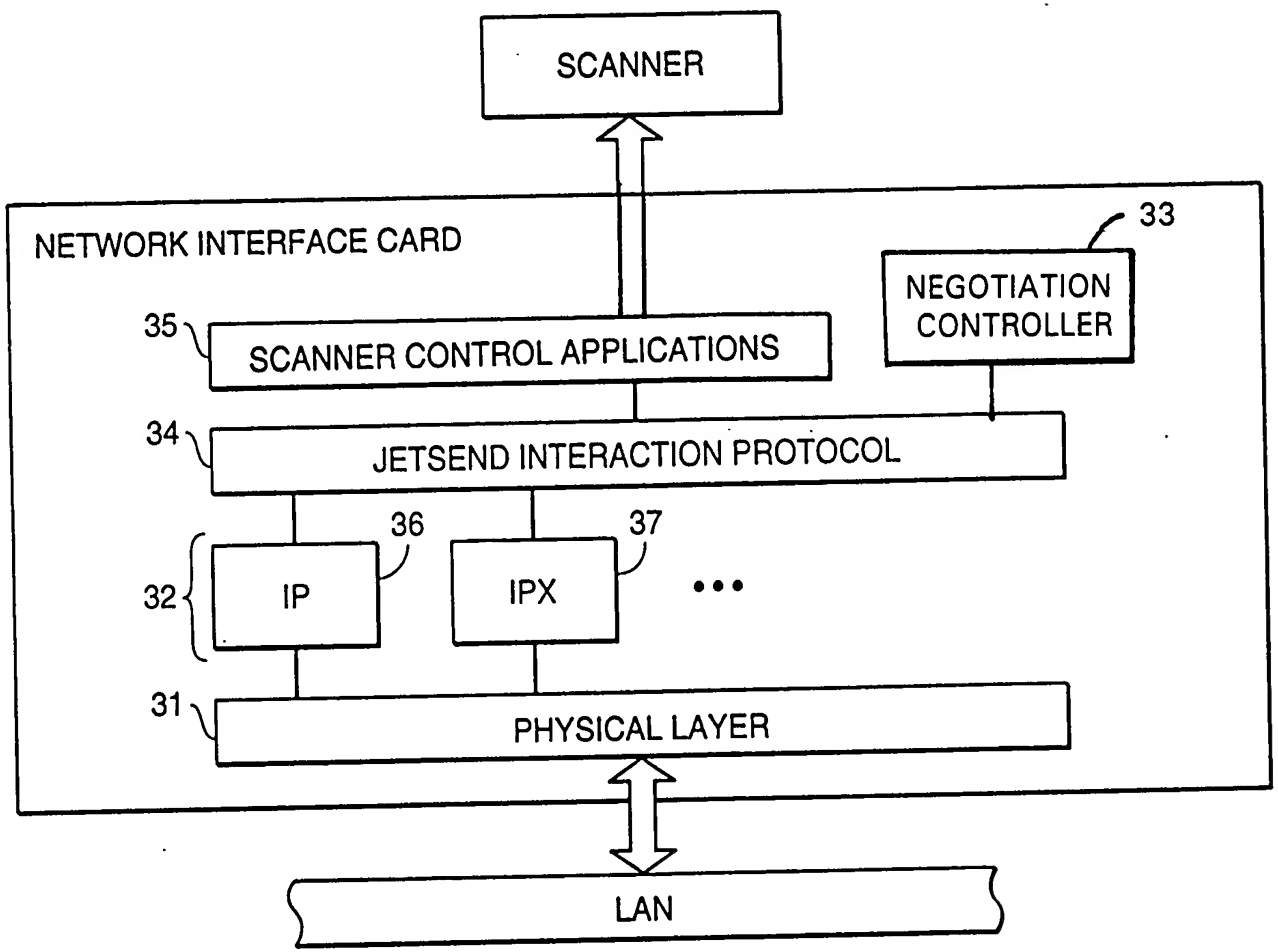
SCANNER
NETWORK INTERFACE CARD
33
NEGOTIATION CONTROLLER
35
SCANNER CONTROL APPLICATIONS
34
JETSEND INTERACTION PROTOCOL
36
37
32
IP
IPX
31
PHYSICAL LAYER
LAN

FIG. 3

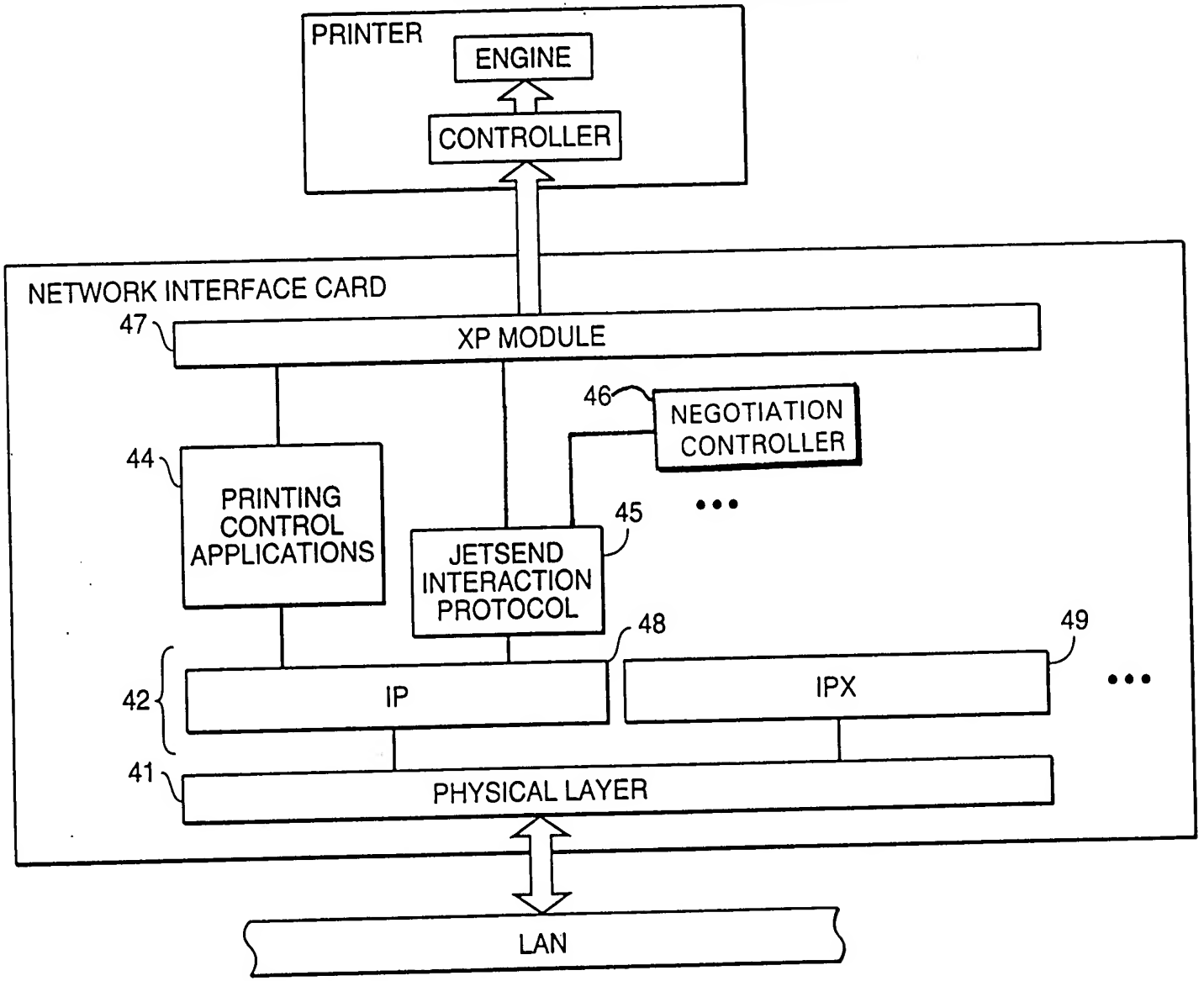
PRINTER
ENGINE
CONTROLLER
NETWORK INTERFACE CARD
47
XP MODULE
46
NEGOTIATION CONTROLLER
44
PRINTING CONTROL APPLICATIONS
45
JETSEND INTERACTION PROTOCOL
48
49
42
IP
IPX
41
PHYSICAL LAYER
LAN

FIG. 4

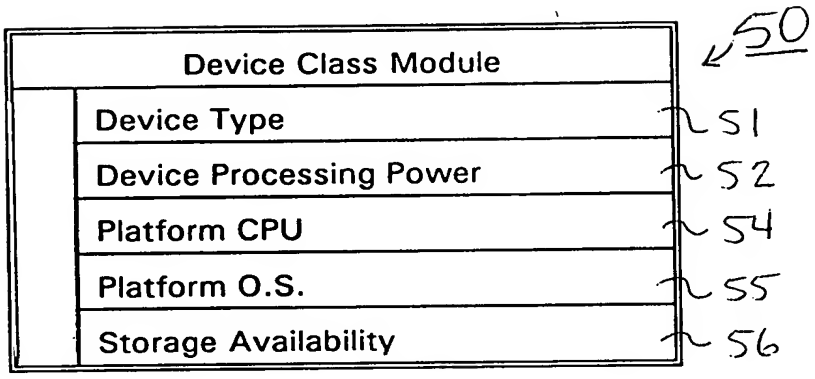
Device Class Module
50
Device Type
51
Device Processing Power
52
Platform CPU
54
Platform O.S.
55
Storage Availability
56

FIG. 5

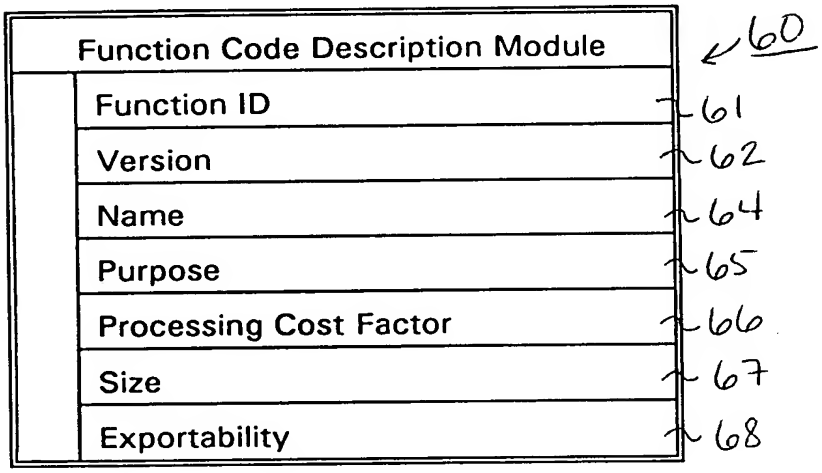
Function Code Description Module
60
Function ID
61
Version
62
Name
64
Purpose
65
Processing Cost Factor
66
Size
67
Exportability
68

FIG. 6

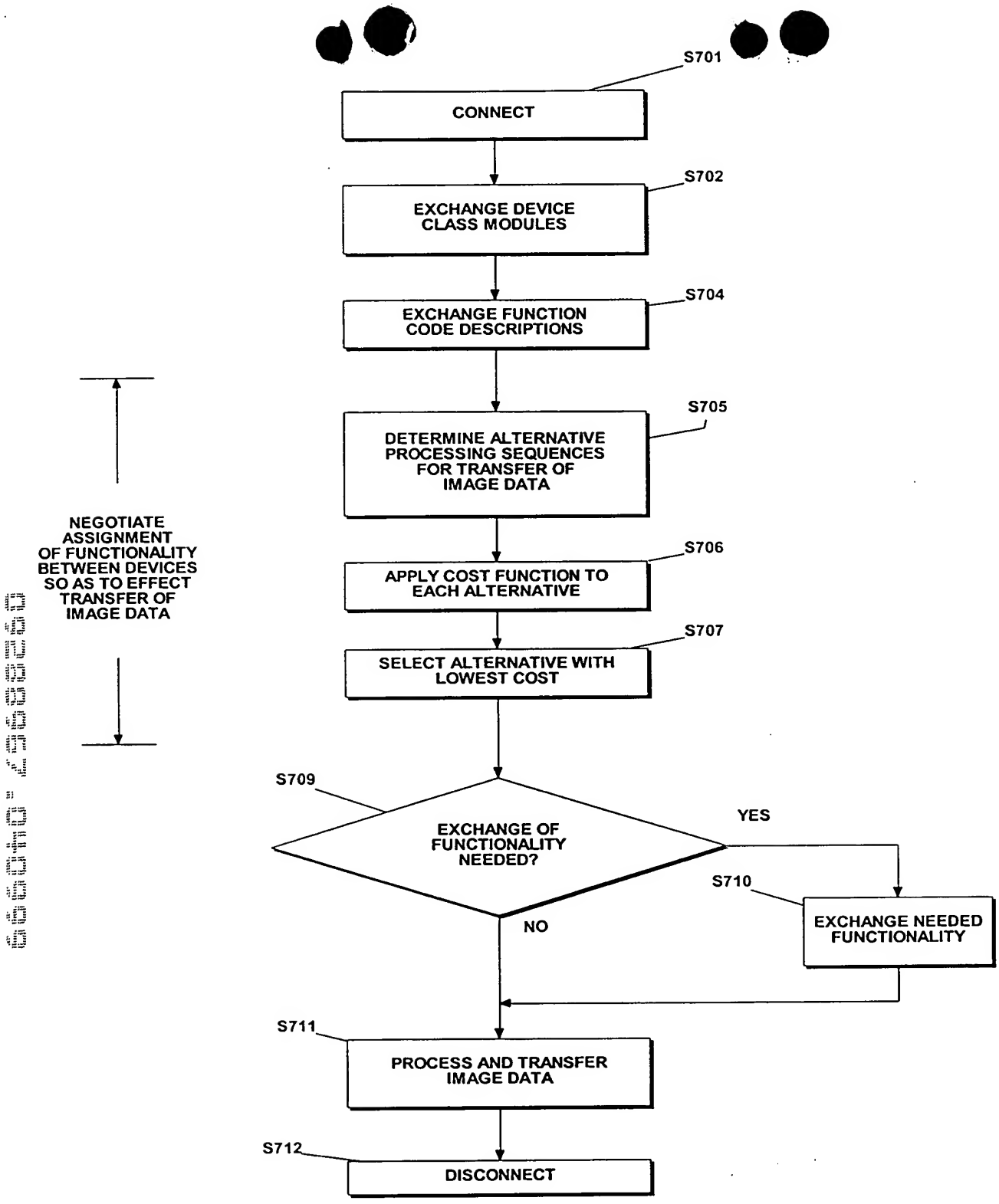
S701
CONNECT
S702
EXCHANGE DEVICE CLASS MODULES
S704
EXCHANGE FUNCTION CODE DESCRIPTIONS
S705
DETERMINE ALTERNATIVE PROCESSING SEQUENCES FOR TRANSFER OF IMAGE DATA
S706
APPLY COST FUNCTION TO EACH ALTERNATIVE
S707
SELECT ALTERNATIVE WITH LOWEST COST
NEGOTIATE ASSIGNMENT OF FUNCTIONALITY BETWEEN DEVICES SO AS TO EFFECT TRANSFER OF IMAGE DATA
S709
EXCHANGE OF FUNCTIONALITY NEEDED?
YES
NO
S710
EXCHANGE NEEDED FUNCTIONALITY
S711
PROCESS AND TRANSFER IMAGE DATA
S712
DISCONNECT

FIG. 7

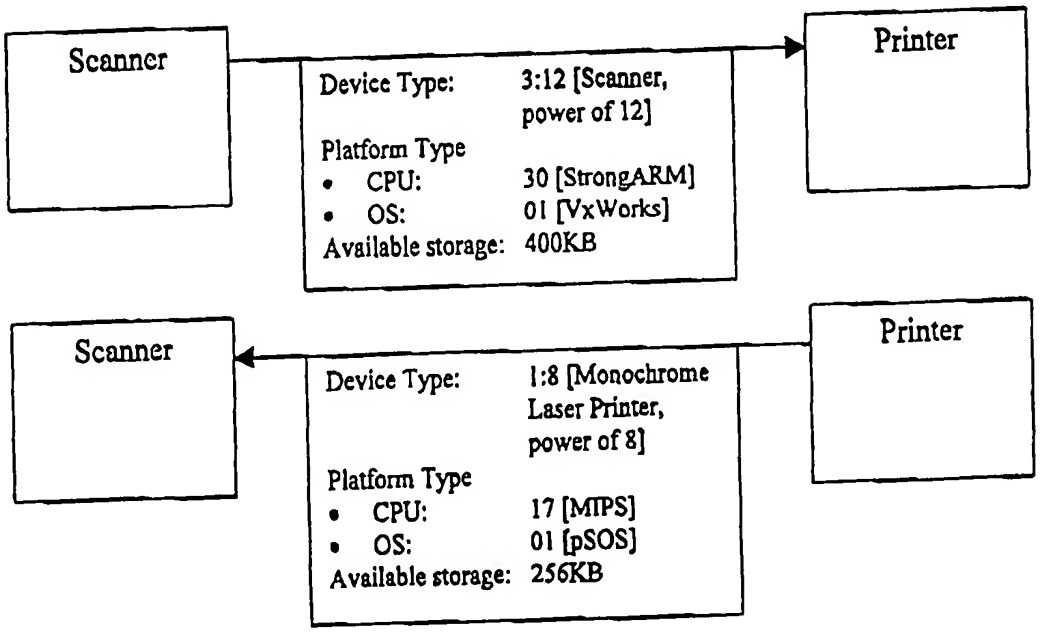
Scanner
Device Type: 3:12 [Scanner, power of 12]
Platform Type
• CPU: 30 [StrongARM]
• OS: 01 [VxWorks]
Available storage: 400KB
Printer
Scanner
Device Type: 1:8 [Monochrome Laser Printer, power of 8]
Platform Type
• CPU: 17 [MIPS]
• OS: 01 [pSOS]
Available storage: 256KB
Printer

FIG. 8

Scanner

Scanner Function A

- ID: 1:1 [Conversion: Color→Gray]
- Version: 1.00.00
- Name: "Color/Gray conversion"
- Purpose: "Converts 24 bit color images to 8 bit gray scale images."
- Processing Cost: 15 [15 second operation at scanner]
- Size: 64K
- Exportable: Yes: Platform Dependent

Printer

Scanner Function B

- ID: 1:2 [Conversion: Gray→B&W]
- Version: 3.00.00
- Name: "Gray/B&W conversion"
- Purpose: "Converts 8 bit color images to black and white images."
- Processing Cost: 12 [12 second operation at scanner]
- Size: 85K
- Exportable: Yes: Platform Independent

Scanner Function C

- ID: 6:6 [Decompression: JPEG]
- Version: 1.10.09
- Name: "JPEG"
- Purpose: "Decompress images -- best for color photographs. Note that it is a lossy scheme!
- Processing Cost: 20 [20 second operation at scanner]
- Size: 90K
- Exportable: No

FIG. 9A

Scanner

Printer

Printer Function A	
• ID:	1:2 [Conversion: Gray→B&W]
• Version:	2.00.23
• Name:	"Gray/B&W conversion"
• Purpose:	"Converts 8 bit color images to black and white images."
• Processing Cost:	10 [10 second operation at printer}
• Size:	40KB
• Exportable:	No
Printer Function B	
• ID:	5:9 [Compression & Decompression: JPEGLS]
• Version:	1.10.09
• Name:	"JPEG-LS"
• Purpose:	"Compress images - best for color photographs. Note that it is a loss-less scheme!"
• Processing Cost:	25 [25 second operation at printer]
• Size:	100KB
• Exportable:	Yes: Platform Independent

FIG. 9B

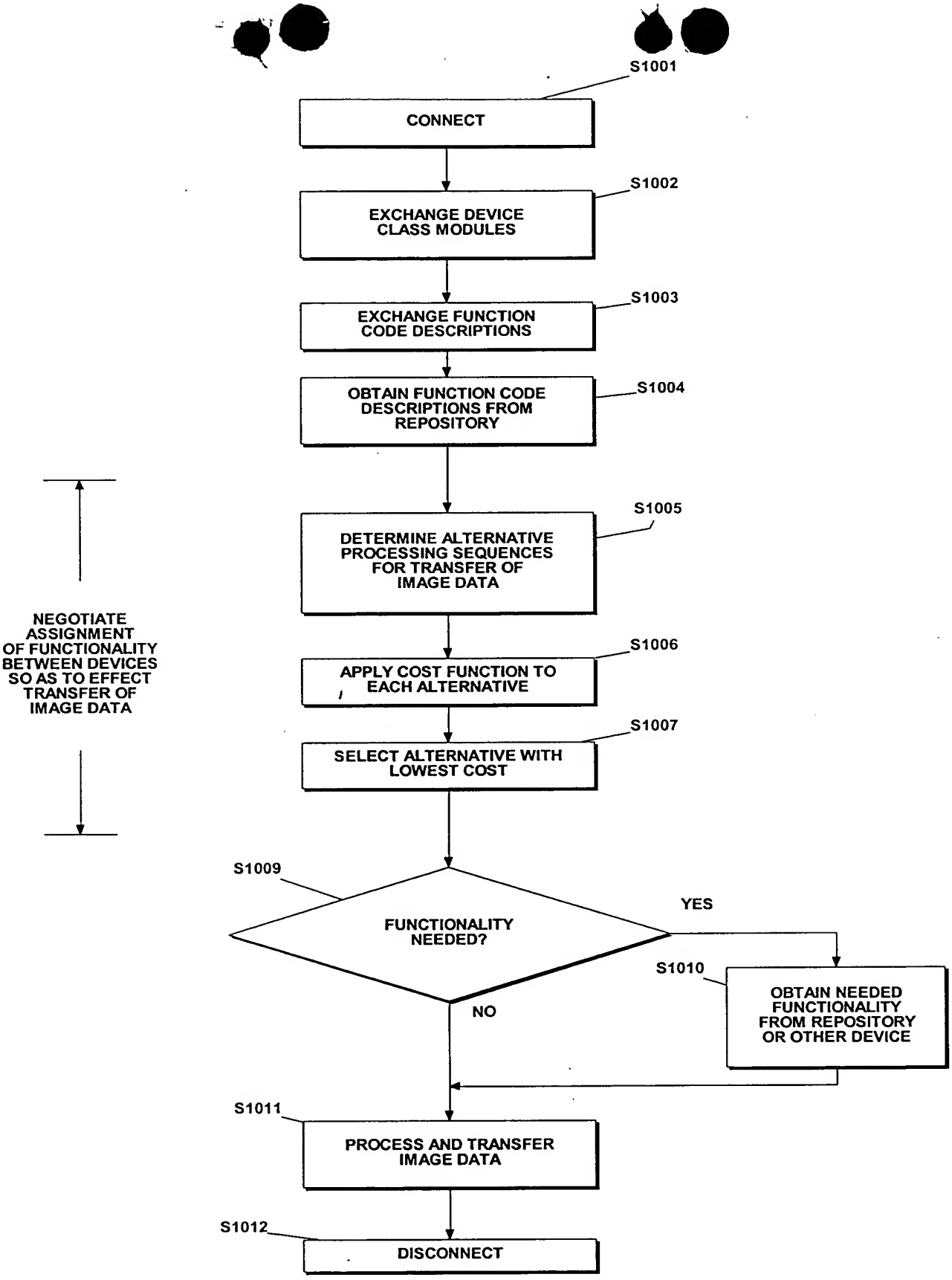
S1001
CONNECT
S1002
EXCHANGE DEVICE CLASS MODULES
S1003
EXCHANGE FUNCTION CODE DESCRIPTIONS
S1004
OBTAIN FUNCTION CODE DESCRIPTIONS FROM REPOSITORY
S1005
DETERMINE ALTERNATIVE PROCESSING SEQUENCES FOR TRANSFER OF IMAGE DATA
S1006
APPLY COST FUNCTION TO EACH ALTERNATIVE
S1007
SELECT ALTERNATIVE WITH LOWEST COST
NEGOTIATE ASSIGNMENT OF FUNCTIONALITY BETWEEN DEVICES SO AS TO EFFECT TRANSFER OF IMAGE DATA
S1009
FUNCTIONALITY NEEDED?
YES
NO
S1010
OBTAIN NEEDED FUNCTIONALITY FROM REPOSITORY OR OTHER DEVICE
S1011
PROCESS AND TRANSFER IMAGE DATA
S1012
DISCONNECT

FIG. 10